

Clinical Factors Contributing to the Differential Diagnosis of Primary Insomnia and Insomnia Related to Mental Disorders

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***Objective:** Primary insomnia and insomnia related to mental disorders are the two most common DSM-IV insomnia diagnoses, but distinguishing between them is difficult in clinical practice. This analysis was performed to identify clinical factors used by sleep specialists to distinguish primary insomnia from insomnia related to mental disorders. **Method:** Clinicians evaluated 216 patients referred for insomnia at five clinical sites, rated a list of clinical factors judged to contribute to each patient's presentation, and assigned diagnoses. Analysis of variance was performed, with contributing factors as the dependent variable and diagnostic group and clinic location as independent variables. **Results:** Sleep specialists rated a psychiatric disorder as a stronger factor for insomnia related to mental disorders and rated negative conditioning and sleep hygiene as stronger factors for primary insomnia. However, a psychiatric disorder was rated as a contributing factor for 77% of patients who received a first diagnosis of primary insomnia. **Conclusions:** While neither sleep hygiene nor negative conditioning is a diagnostic criterion in DSM-IV, these results support the face validity of these clinical factors distinguishing between primary insomnia and insomnia related to mental disorders. The use of a psychiatric disorder as an inclusion criterion for insomnia related to mental disorders and an exclusion criterion for primary insomnia reinforces a categorical distinction between the two diagnoses, but the contribution of psychiatric symptoms in primary insomnia appears to be a clinically relevant one. These findings suggest the need for studies on the validity of negative conditioning and sleep hygiene in the etiology of primary insomnia, as well as on the significance of psychiatric disorders, especially depression, in primary insomnia.*

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The 10% prevalence of chronic insomnia disorders and the influence that diagnosis has on treatment recommendations underscore the need for a reliable

and valid diagnostic system (1–3). The DSM-IV field trial for sleep disorders demonstrated that insomnia related to mental disorders was the most frequent sleep diagnosis (46%) and that primary insomnia was the next most frequent sleep diagnosis (22%) among patients referred with an insomnia complaint at five sleep disorders centers (4, 5). The diagnostic agreement (kappa) in assigning a first diagnosis was 0.42 for insomnia related to mental disorders and 0.40 for primary insomnia, a level of agreement that is marginal according to Landis and Koch criteria (6). Perhaps more important, 77% of patients diagnosed with primary insomnia by a sleep specialist also received insomnia related to mental disorders as a second, third, or rule-out diagnosis. Similarly, 36% of patients diagnosed with insomnia related to mental disorders by

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sleep specialists also received primary insomnia as a second, third, or rule-out diagnosis. These results suggest that not only was it difficult for two clinicians to agree on a first diagnosis of primary insomnia or insomnia related to mental disorders, but also that clinicians had difficulty discriminating the boundary between these two diagnoses in individual cases. This report presents an analysis of data collected in the DSM-IV field trial in order to examine the diagnostic boundary between insomnia related to mental disorders and primary insomnia (7–11). The aim of the analysis was to determine whether there were differences in the clinical factors judged to contribute to insomnia in patients diagnosed with primary insomnia or insomnia related to mental disorders.

METHOD

Patients' characteristics and study methods have been described in greater detail elsewhere but will be briefly summarized here (4). A total of 216 patients between the ages of 14 and 89 and with a presenting complaint of insomnia were accepted into the study. The insomnia patients were self- and physician-referred and not recruited by advertisement. No other selection criteria were employed. After complete description of the study to the patients, written informed consent was obtained. Approximately 40–50 patients were enrolled from sleep disorders centers at each of five sites (Western Psychiatric Institute and Clinic, Pittsburgh; Montefiore Hospital of the Albert Einstein College of Medicine, Bronx, N.Y.; Pennsylvania State University College of Medicine, Hershey; Henry Ford Hospital, Detroit; and Mayo Clinic, Rochester, Minn.).

Interviewers were given the proposed DSM-IV diagnoses and criteria for review before interviewing subjects. Each patient was interviewed by one sleep disorders specialist and one nonsleep disorders clinician (psychologist, psychiatrist, or neurologist), who used a semistructured clinical interview as part of a larger study examining the reliability, clinical utility, and influence of training and experience on the DSM-IV criteria for sleep disorders (4). In this article, we report on data collected from the five sleep disorders specialists, and all references to clinicians henceforth refer to the sleep disorders specialists. Four of the five specialists were certified by the American Board of Sleep Medicine. All five were selected because of their recognized expertise in the field of insomnia and sleep disorders. More descriptive details of sleep specialists can be found in the report by Buysse et al. (4).

After interviewing each patient, the clinician rated the relative importance of prespecified factors on a 5-point scale (1=very important, 5=not at all important). The instructions on the rating form were as follows: "Rate the importance of each of the following items as a contributing factor of the sleep disorder in the patient you have just seen." This subjective scale was selected to be consistent with the goal of the larger study examining the performance of the DSM-IV insomnia criteria in a *clinical* context. Because the major insomnia categories in DSM-IV are organized by presumed etiology, these entities guided the selection of the factors that were used on the rating form (e.g., psychiatric disorder or sleep apnea). Other factors, such as poor sleep hygiene practices, negative conditioning, and effects of aging on sleep, are not part of DSM-IV criteria but were selected on the basis of observations made from clinical practice, research, and the International Classification of Sleep Disorders (8–10, 12, 13). Each clinician then indicated clinical diagnoses by using DSM-IV criteria. For each patient, clinicians indicated at least one diagnosis but were able to apply up to three. In addition, unlimited rule-out diagnoses were allowed. These multiple factors and ratings were collected to allow for a more precise characterization of patient presentations that could be used to supplement categorical or diagnostic descriptions. Clinicians were asked to specify in an open format the psychiatric dis-

order (e.g., dysthymia) when it was judged to contribute to the clinical presentation.

Two-way analyses of variance (ANOVAs) (with diagnostic group and clinic location as factors) were performed, with the mean rating for each contributing factor as the dependent measure. In the first set of analyses, diagnostic group (primary insomnia or insomnia related to mental disorders) was the first diagnosis in 147 patients. In the second analyses, diagnostic groups were determined by four different combinations of diagnostic ratings. For example, pure primary insomnia (N=11) required a first diagnosis of primary insomnia and no diagnosis of insomnia related to mental disorders. Predominant primary insomnia (N=37) required a first diagnosis of primary insomnia and insomnia related to mental disorders as a second, third, or rule-out diagnosis. Pure insomnia related to mental disorders (N=63) required a first diagnosis of insomnia related to mental disorders and no diagnosis of primary insomnia. Predominant insomnia related to mental disorders (N=36) required a first diagnosis of insomnia related to mental disorders and primary insomnia as a second, third, or rule-out diagnosis. This evaluation of first diagnosis only and combinations of diagnoses was performed to evaluate the influence of the large number of patients who received diagnoses of *both* primary insomnia and insomnia related to mental disorders. Clinic location was used as a factor to identify whether the site of an evaluation interacted with a contributing factor of interest. The level of significance with Bonferroni correction was set at 0.0025 (0.05 divided by 20). Tukey's honestly significant difference tests were used for post hoc comparisons.

RESULTS

Table 1 lists the contributing factors and the mean ratings for each factor for a first diagnosis of primary insomnia (N=48) or insomnia related to mental disorders (N=99). Lower scores indicate a stronger rating than higher scores. Psychiatric disorders, negative conditioning, and poor sleep hygiene were the only factors that contributed differently toward the two diagnoses. Poor sleep hygiene practices consist of daily living activities that are inconsistent with the maintenance of good-quality sleep and full daytime alertness. Such activities include, but are not limited to, the use of excessive alcohol, spending excessive amounts of time awake in bed, and not protecting time for relaxation before bedtime. Negative conditioning refers to marked overconcern or worry about the inability to sleep that occurs when the individual is lying in bed trying to sleep, as well as to external cues in the bedroom that elicit arousal and frustration associated with sleeplessness.

Figure 1 shows the three contributing factors—psychiatric disorders, negative conditioning, and poor sleep hygiene—that had significantly different ratings when the diagnostic groups were further partitioned into pure and predominant categories. A psychiatric disorder contributed more toward pure insomnia related to mental disorders and predominant insomnia related to mental disorders than toward either pure primary insomnia or predominant primary insomnia. In addition, a psychiatric disorder was rated as contributing more toward predominant primary insomnia than toward pure primary insomnia. Clinicians specified a mood disorder most frequently (63% of cases) as the psychiatric factor for patients diagnosed with

TABLE 1. Ratings of 20 Contributing Factors for Patients Given a First Diagnosis of Primary Insomnia (N=48) or Insomnia Related to Mental Disorders (N=99)

Contributing Factor	Rating ^a				Analysis		
	Primary Insomnia		Insomnia Related to Mental Disorders				
	Mean	SD	Mean	SD	F	df	p
Psychiatric disorders	2.85	1.34	1.29	0.63	55.94	1, 137	0.0001
Environmental factors	3.63	1.18	3.67	1.29	6.28	1, 137	0.01
Social/environmental changes	3.92	1.38	3.58	1.40	2.98	1, 137	0.09
Negative conditioning	2.04	1.08	3.62	1.24	38.55	1, 135	0.0001
Misperception of sleep	3.80	1.21	4.55	0.94	0.67	1, 105	0.41
Poor sleep hygiene practices	1.92	0.99	3.21	1.40	12.50	1, 137	0.0006
Neurologic disorder	4.88	0.50	4.74	0.78	0.88	1, 120	0.35
Medical disorder	4.26	1.16	4.33	1.03	0.07	1, 127	0.80
Medication use	4.36	1.11	4.02	1.29	1.05	1, 136	0.31
Substance use	4.88	0.44	4.77	0.73	0.35	1, 136	0.55
Alcohol use	4.69	0.75	4.65	0.88	0.92	1, 137	0.34
Withdrawal from substance	4.52	1.07	4.67	0.86	0.001	1, 137	0.96
Transient sleep/wake schedule disturbance	4.96	0.20	4.94	0.45	0.49	1, 137	0.49
Frequently changing sleep/wake schedule	4.35	1.23	4.78	0.69	1.21	1, 137	0.27
Persistent sleep/wake schedule disturbance	4.50	1.13	4.69	0.94	0.55	1, 137	0.46
Habitual short/long sleep duration	4.66	0.96	4.86	0.52	1.34	1, 136	0.25
Behavioral disturbance arising in sleep	4.88	0.49	4.90	0.60	0.12	1, 135	0.73
Sleep apnea	4.74	0.68	4.71	0.76	0.41	1, 115	0.52
Rhythmic limb movements	4.47	1.11	4.73	0.71	0.05	1, 101	0.82
Aging effects on sleep	4.47	0.92	4.52	0.90	0.11	1, 133	0.75

^a1=very important, 5=not at all important.

insomnia related to mental disorders, followed by an anxiety disorder (10%), a personality disorder (10%), an adjustment disorder (4%), a psychotic disorder (4%), and various other diagnoses (8%). The psychiatric factors associated with patients diagnosed with primary insomnia were a mood disorder (17%), an anxiety disorder (16%), a personality disorder (10%), and no diagnosis, a rule-out diagnosis, or various other diagnoses (57%).

Sleep specialists endorsed negative conditioning as contributing less toward pure insomnia related to mental disorders than toward the other three diagnostic groups. Negative conditioning was also seen as contributing less to predominant insomnia related to mental disorders than to predominant primary insomnia. Poor sleep hygiene was seen as contributing less toward pure insomnia related to mental disorders than toward the other three groups.

In this study of primary insomnia and insomnia related to mental disorders, main effects for location were statistically significant for the three identified contributing factors, but no diagnosis-by-location interactions were present for these factors. The diagnostic concordance across study sites for insomnia, as well as the other DSM-IV sleep disorders, was the main focus of the study by Buysse et al. (4), and the interested reader is referred to that report for details.

DISCUSSION

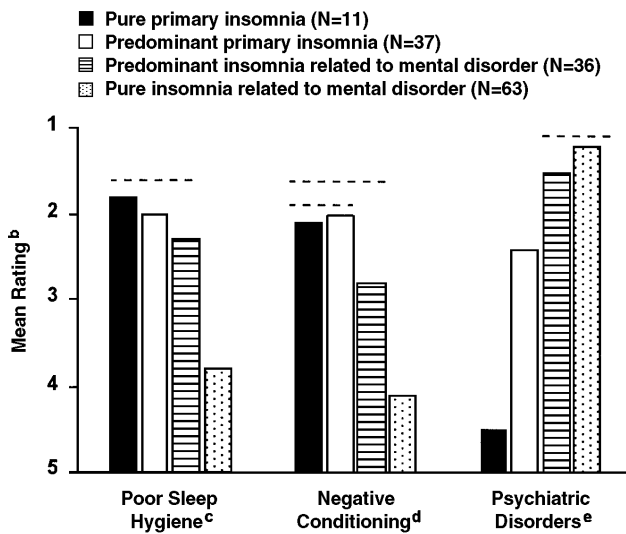
Sleep disorder specialists rated the contributions of a psychiatric disorder, negative conditioning, and poor sleep hygiene differently in patients diagnosed with primary insomnia as opposed to insomnia related to a mental disorder. Sleep specialists rated negative conditioning and poor sleep hygiene as contributing more to primary insomnia than to insomnia related to mental disorders and a psychiatric disorder as contributing more to insomnia related to mental disorders than to primary insomnia. These results were present whether a first diagnosis only was considered or whether ratings were expanded to include multiple diagnoses.

While neither poor sleep hygiene nor negative conditioning is a diagnostic criterion in DSM-IV, both are considered as central features of insomnia syndromes in the International Classification of Sleep Disorders and probably influenced sleep specialists' conceptualization of insomnia disorders (14). That a psy-

chiatric disorder was a factor distinguishing insomnia related to mental disorders from primary insomnia is not surprising given that a psychiatric disorder is a DSM-IV inclusion criterion for insomnia related to mental disorders and an exclusion criterion for primary insomnia. However, psychiatric disorders (mood, anxiety, or personality disorders) were *also* identified as a contributing factor for 77% of patients who received a first diagnosis of primary insomnia.

Difficulties in the reliability of diagnosing primary insomnia, as well as in distinguishing primary insomnia from insomnia related to mental disorders, reflect long-standing controversies over the relationship between these two disorders. Insomnia related to mental disorders is conceptually a psychiatric insomnia. A current syndromal psychiatric disorder must be present and judged to be a precipitating and a perpetuating factor causally related to the insomnia syndrome. According to DSM-IV criteria, primary insomnia is essentially a diagnosis of exclusion. On a diagnostic level, subjective clinical impressions are required to evaluate the presence of a psychiatric disorder, its relationship to the insomnia syndrome, and the judgment that other conditions have been adequately excluded. On a conceptual level, rather than a diagnostic one, primary insomnia has been explained by behavioral causes, latent or subsyndromal psychiatric causes, and combinations

FIGURE 1. Ratings of Three Contributing Factors for Patients Given a First Diagnosis of Primary Insomnia and Insomnia Related to Mental Disorders^a



^aThe dashed lines above the bars indicate nonsignificant differences ($p < 0.05$), as determined by Tukey's honestly significant difference tests.

^b1=very important, 5=not at all important.

^cGroup effect: $F=5.31$, $df=3, 129$, $p=0.002$ (ANOVA).

^dGroup effect: $F=14.56$, $df=3, 127$, $p=0.0001$ (ANOVA).

^eGroup effect: $F=53.52$, $df=3, 129$, $p=0.0001$ (ANOVA).

of the two. This conceptual difference is clearly present in the different diagnostic categories present in DSM-IV and in the International Classification of Sleep Disorders, and these differences are reflected in clinicians' judgments in the current study.

These findings have important nosologic and treatment implications. Although sleep specialists identified a psychiatric disorder in patients with primary insomnia, they also assessed the impact of learned sleep-preventing associations (negative conditioning) and daily living activities inconsistent with the maintenance of good-quality sleep (inadequate sleep hygiene) and determined these factors to be more salient etiologic and diagnostic features in individual patients. This diagnostic ambiguity may suggest differential treatment strategies. For example, while cognitive and behavioral interventions may be recommended to alleviate negative conditioning or inadequate sleep hygiene, pharmacotherapies traditionally used in the treatment of depression may offer a mechanism of action targeting the underlying or coexisting psychiatric factors present in many patients with primary insomnia.

A strength of this study was the large number of clinical subjects and five sleep disorder specialists at five different clinical centers. A limitation of the design, however, was the use of a prespecified list of contributing factors. The reason for a prespecified list was to achieve some degree of standardization in assessment. However, while attempts were made to cover factors derived from sleep categories in DSM-IV and

the International Classification of Sleep Disorders, it is clear that prompting for some factors and not others limits the comprehensiveness of factors evaluated and focuses emphasis on the factors that were included. Notably, an "arousal" factor was not included in the original list; in retrospect, inclusion of such a factor would have allowed for additional consideration of the similarities between psychophysiological insomnia from the International Classification of Sleep Disorders and primary insomnia from DSM-IV (14).

These results suggest the need to clarify the implications of present or past subsyndromal and syndromal psychiatric disorders in insomnia related to mental disorders and primary insomnia, particularly with regard to treatment. Medications, particularly benzodiazepines, are typically prescribed for chronic insomnia in primary care settings. Psychiatric treatments generally target the predominant psychiatric diagnosis alone or in conjunction with adjuvant hypnotic medication for insomnia related to mental disorders. These results suggest that behavioral treatment developed for sleep hygiene and negative conditioning may be useful as part of a treatment strategy for psychiatric insomnias (3, 14). Similarly, our results suggest that the relationship between primary insomnia and psychiatric symptoms may support the use of antidepressant medications in primary insomnia beyond their sedating side effects in order to target the related contribution of associated subsyndromal or atypical depression and anxiety symptoms.

This study also suggests the need to determine the validity and utility of additional diagnostic criteria, such as negative conditioning and poor sleep hygiene, in discriminating primary insomnia from insomnia related to mental disorders. Empirical evidence for the efficacy of pharmacotherapies for primary insomnia and the use of specific behavioral interventions in the treatment of insomnia related to mental disorders is needed. The accumulation and integration of these studies would help to clarify the relationship between primary insomnia and insomnia related to mental disorders and would thus potentially improve the treatment of these common and often chronic conditions.

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